Council. You are aware that the domestic affairs of the Institution are managed by the House and Finance Committee, who have also the task of examining and certifying all the accounts, and approving the payments that are made. The improvements in the rooms and in the general arrangements, as also in the lighting and ventilating of our theatre, will have convinced you that much time has been devoted to these labours, for which our thanks are justly due to these gentlemen, and particularly to Mr. James Simpson, whose attention continues to be conspicuously useful.

Before leaving the chair I must express my own opinion, in which I believe every member of the Institution who has had an opportunity of judging will agree, of the ability, zeal, and obliging manner, in which the important duties of secretary are discharged by Mr. Manby.

Feb. 20.—The President in the chair.

The discussion on the screw propeller, which was carried to so great a length at the last meeting, was resumed.

Mr. Grantham explained the construction of the propeller used on board the Liverpool Screw. It was formed of four arms, with broad shovel-ends, set at an angle of 45°; and from his account its action appeared to have been very satisfactory. He also spoke very high of Ericson's form of propeller as better adapted for large diameters than any other kind. This statement was confirmed by Mr. Braithwaite, who promised, at a future meeting, to give the results obtained on board the Princeton steamer, United States of America. Several other members addressed the meeting, and almost all in favour of the principle of screw-propelling, which appears now to have assumed a practically useful shape.

The discussion upon the valves of pumps was also resumed. The resemblance between the disc valve of Palmer and Perkins, and that invented by Belidor was examined, and the general feeling appeared to be that Messrs. Palmer and Perkins' valve would be very useful in large pumps for mines through which much sand or chips passed. The general question of valves with large openings, with their influence on the working of the deep mines of Cornwall and other places, was noticed.

The discussion occupied so much time that no papers could be read; those therefore which had been appointed for the 20th were announced for reading on the 27th instant, viz.

No. 698. "Description of a bridge across the river Shannon at Portumna," by T. Rhodes, M. Inst. C. E.

No. 658. "Description of the bridge over the river Whitadder at Allanton," by J. T. Syme.

No. 625. "Description of a cast and wrought iron trussed girder for bridges, with a series of experiments on their strength," by F. Nash.

ELECTRO-METALLURGY.

An article appears in the *Mechanics' Magazine* of the 3rd instant, being a "Contribution towards a History of Electro-Metallurgy," by Henry Dircks, Esq., the author of the essay upon "Improvements connected with Gilding," which appeared in our last number, and who gives in succession the names of Mr. Henry Bessemer, Mr. C. J. Jordan, Mr. John Dancer, and *lastly*, Mr. Thomas Spencer, of Liverpool, who for about five years has enjoyed the distinguished honour of being considered the discoverer, and, therefore, "the father of electro-metallurgy." The introductory portion of Mr. Dircks's very able *exposé* of this strangely successful piece of artifice, explains in a few words the circumstance which led to its composition. He observes, that in looking over the *Mechanics' Magazine* for several years past, his attention was drawn to Vol. 36, for 1842, in which appears a paper entitled "Books on Electro-Metallurgy" (a review of the works of Mr. G. Shaw and Mr. A. Smee on that subject), and in which critique the claims of Mr. T. Spencer to priority of invention are strongly advocated. He then proceeds to remark, that the earliest published account of the manipulation requisite for obtaining casts by galvanic action is contained in the letter of Mr. C. J. Jordan, dated May 22, 1839, and published in the *Mechanics' Magazine* for June 8, 1839. Both Mr. Jordan and Mr. Spencer describe Dr. Golding Bird's small galvanic apparatus; and it appears, that in the processes employed by each there is such similarity, that it would not be saying too much to assert, that if Mr. Spencer's paper had never been published, Mr. Jordan's letter would have quite as fully supplied us with all the needful information. Mr. Jordan's letter is then given, and will be read with considerable interest by electricians, and all who are conversant with the increasingly useful art of electrography.

Mr. Dircks, however, has not stopped here; he has given verbatim a letter from Mr. John Dancer (formerly of Liverpool, now of Manchester), which clearly places Mr. Spencer in the light of borrowing assistance, which he has never acknowledged. The modest, unassuming manner in which Mr. Dancer makes his statements, in the letter from him to Mr. Dircks, dated June 17, 1840, is very praiseworthy. He concludes that—"The whole of the matter may be summed up thus: I never did, nor ever wished to, take credit for Mr. Spencer's experiments; but if he had, as he now states, produced compact precipitated copper at the time when I shewed him the piece in question, he was wrong in allowing me to suppose otherwise; and that, whether he had or not, the experiments that I tried originated with me in the manner described—and this is all I have ever desired to maintain."

The case of Mr. Thomas Spencer is briefly this:—He read his paper, "On Voltaic Electricity applied to the purpose of Working in Metal," before the Liverpool Polytechnic Society, on the 12th of September, 1839. In recapitulating what he has advanced, Mr. Dircks notices, that Mr. Spencer received his first promptings at the Liverpool meeting of the British Association, assisted by Dr. Bird's ingenious galvanic apparatus—that the scientific journals were discussing applications of electricity—that the appearance of Mr. Jordan's letter and intercourse with Mr. Dancer altogether afforded Mr. Spencer broad and sufficient hints. In a note appended to the article written by Mr. Dircks, the editor acknowledges the cogency of the statements brought forward, and expresses his surprise that not only himself, but likewise Mr. Noad (the author of an excellent work on electricity), should have fallen into and perpetuated the same error of supporting the untenable claims of Mr. Spencer; still more, however, is it a matter of surprise to him, that neither Mr. Jordan, nor any of his friends, should have before now stepped forward "to vindicate his claims to the promulgation of an art which justly entitles him to take a high place amongst the benefactors of his age and country."

Cleansing the Streets.—The powers of an engine for cleansing the streets, for which a patent has been obtained, and of which all the particulars are to be learnt at No. 3, Trafalgar-square, were tested yesterday in the streets in the neighbourhood of Guildhall, in the presence of many gentlemen who were invited to attend, and amongst whom were some of the Commissioners of Sewers. The engine could scarcely be said to have had a fair trial, for the streets were not sufficiently muddy to shew what might be done by it. As far as the experiment went, it was most satisfactory; it cleared away the dirt and mud with rapidity and certainty, and surpassed all inventions of the same sort which we have hitherto witnessed. It unites simplicity, strength, continuity of work, and cheapness of construction, and is the best thing of the sort hitherto produced. An extract from the prospectus, published by the patentee, will explain its properties and its merits:—"The engine is simply and effectively constructed; is enclosed in a case open only at the bottom part of it, to enable the brushes to come in contact with the street or road, so that neither dust nor dirt can escape from it. The mud or dirt is discharged into a receiving truck travelling in front of the engine; the truck when filled is easily detached and drawn away to the laystall or shute; another empty truck is instantly attached to the engine, which proceeds on its work without the delay of taking it from the street with the receiver when it requires to be emptied; thus the engine remains constantly at its work. This is a distinguished and most important feature of this engine."

Literature.

1. *Architectural Illustrations of Kettering Church, Northamptonshire. The Drawings and Descriptions by Robert William Billings; the Engravings by George Wrater.* London: T. and W. Boone, 29, New Bond-street, for R. W. Billings, Manor House, Kentish Town, and G. Winter, 5, Frederick-place, Gray's Inn-road; 1843. Medium 4to. 20 plates, 16 pp.
2. *The Architectural Antiquities of the County of Durham. From Drawings by Robert William Billings; the Engravings by J. H. Le Keux, and George Wrater.* London: T. and W. Boone, for George Andrew, Saddler-street, Durham, R. W. Billings, Manor House, Kentish Town, and George Winter, 5, Frederick-place, Gray's Inn-road. Parts 1 and 2, containing 4 plates each. Medium 4to.

[FIRST NOTICE.]

It is not our intention to go upon the present occasion into a review of these works further than to recommend them for their usefulness, as we intend reserving our critical remarks till we have space to enlarge in a detailed manner upon every statement and graphic representation contained in them. We shall, therefore, confine ourselves this week within very narrow limits, for the purpose rather of stating our own intentions than of developing the merits of Mr. Billings and of his engravers.

The work on Kettering church being very beautifully executed, is, on that account, and from its number of illustrations, extremely useful, though issued at a low price; but in order to obtain the extended support of the public, and by the circulation of a more numerous edition obtain remuneration for the inevitable trouble and outlay, Mr. Billings projected the publication of a lower-priced series of works, and in pursuance of that project has put forth two parts of the Durham Architectural Antiquities; but the lowness of charge for this latter work, and of those which he proposes to publish as companions to it, has, of necessity, induced and compelled the confining of the illustrations to pictorial representations of the subjects delineated; which mode of treatment, though suited to the general public taste, is, however, insufficient for the man of practical architecture. Feeling deeply the loss which would ensue from the lapse of any opportunity which the visitings of Mr. Billings (who is *Itinerant Delineator of Architectural Subjects to the Freemasons of the Church*) afford for the collection of the exquisite details of Gothic architecture which lie, many of them buried as it were, in obscure country villages, we have given him unlimited orders to collect, in his professional journeyings, accurate drawings of windows, doors, capitals, bases, crockets, finials, bosses, panels, fonts, and other details, which he has undertaken himself to draw upon the wood, so as to insure authenticity in every desirable particular.

In order to shew the manner in which architectural subjects will in future be treated in The Builder, Mr. Billings has delineated for us on the wood, the eastern window of the chancel of Kettering church, which, though simple in form, is of peculiarly fine and lofty proportions: qualities rendering it a subject much more proper for imitation than the later "*Decorated*" examples, which are so often low and crouching in general shape, and dry and mean in the profiles of their mouldings; whereas the example in question, which we here give, preserves the graceful loftiness of the "*Early English*" with an union of the geometrical animus, with lines flowing alike in the tracery and in every moulding of the work. The circles in the window-head are without foliation, sub-divisions, and cusps; and yet so admirably are richness and simplicity united in the design, that no want is apparent on that account. We have desired Mr. Billings, in this, and in all the other drawings of windows which he may send us, to add a plan, or horizontal section, and also a vertical section through the centre of the work, in order to shew the peculiar construction of the inner arch, which, being level at its crown, and not fluing or splayed, naturally fits upon and meets the window-jambs with an inclined line, which may be seen in this section of our subject running from the inner arris-mould up to the head-tracery; and we have further desired him to afford us an elevation of the inner